

WHAT IS CLAIMED IS:

1. A current supply circuit for supplying an output current according to an input voltage to a signal line, comprising:

a current driving portion, provided to supply said output current to said signal line, in which a passing current changes according to a voltage of a control node;

5 a voltage holding portion for holding the voltage of said control node;

a current compensating portion for setting said control node to a voltage corresponding to a reference current by passing said reference current to said current driving portion in a first operation mode in which an input node is set to a predetermined initial voltage; and

10 an input transmitting portion, in a second operation mode which is executed after said first mode and in which said input node receives transmission of said input voltage, for changing the voltage of said control node in accordance with a change in the voltage of said input node between said first and second operation modes.

2. The current supply circuit according to claim 1, wherein said signal line is electrically coupled to a first voltage at least in said second operation mode,

5 said current driving portion has a first transistor, electrically coupled between a second voltage and a first node, having a gate coupled to said control node,

said voltage holding portion has a first capacitive element connected between said control node and said second voltage,

10 said current compensating portion has:  
a second transistor electrically coupled between said first node and a line for supplying said reference current and turned on in said first operation mode; and

a third transistor electrically coupled between said first node and said control node and turned on in said first operation mode,

15 said input transmitting portion has a second capacitive element

connected between said input node and said control node, and  
said current supply circuit further comprises  
a fourth transistor electrically coupled between said first node and  
said signal line and turned on at least in said second operation mode.

3. The current supply circuit according to claim 2, wherein  
said first voltage is a positive voltage, and  
each of said first, second, third and fourth transistors is an n-type  
polysilicon thin film transistor.

4. The current supply circuit according to claim 2, wherein  
said first voltage is a ground voltage or a negative voltage, and  
each of said first, second, third and fourth transistors is a p-type  
polysilicon thin film transistor.

5. The current supply circuit according to claim 1, wherein  
said output current is supplied to a current-driven light emitting  
element, and  
said input voltage is set to a level corresponding to display  
5 luminance of said current-driven light emitting element.

6. The current supply circuit according to claim 1, further  
comprising:

a switch portion provided between said current driving portion and  
said signal line and turned on in said second operation mode, wherein  
5 in an ON period of said switch portion, a voltage of said input node is  
maintained at said predetermined initial voltage for a predetermined  
period and, after that, said input voltage is transmitted to said input node.

7. A display apparatus comprising:  
a plurality of pixels, arranged in a matrix, each having a current-  
driven light emitting element;  
a plurality of scan lines arranged in correspondence with rows of said

5 plurality of pixels and selected sequentially in predetermined cycles;  
a plurality of data lines arranged in correspondence with columns of  
said plurality of pixels; and  
first and second current supply circuits, arranged in correspondence  
with each of said data lines, for executing first and second operation modes  
10 complementarily to each other to supply a data current according to a data  
voltage which is set in correspondence with display luminance in a pixel to  
be scanned in said plurality of pixels to the corresponding data line,  
wherein  
each of said first and second current supply circuits includes:  
15 a current driving portion, provided to supply said data current to the  
corresponding data line, in which a passing current changes according to a  
voltage of a control node;  
a first voltage holding portion for holding the voltage of said control  
node;  
20 an input node, set to a predetermined initial voltage in said first  
operation mode, to which said data voltage is transmitted in said second  
operation mode;  
a current compensating portion for setting said control node to a  
voltage corresponding to a reference current by passing said reference  
25 current to said current driving portion in said first operation mode; and  
an input transmitting portion, in said second operation mode, for  
changing the voltage of said control node in accordance with a change in  
the voltage of said input node between said first and second operation  
modes, and  
30 each of said pixels includes a drive circuit for supplying a current  
according to said data current transmitted via the corresponding data line  
in an active period of the corresponding scan line to said current-driven  
light emitting element and continuously supplying a current corresponding  
to said data current to said current-driven light emitting element also in an  
35 inactive period of said corresponding scan line.

8. The display apparatus according to claim 7, wherein

said data voltage is set in accordance with a difference between a set value of a data current corresponding to said display luminance and said reference current.

9. The display apparatus according to claim 7, wherein  
said drive circuit electrically couples the corresponding data line to a first voltage in said second operation mode,

5 said current driving portion includes a first transistor, electrically coupled between a second voltage and a first node, having a gate coupled to said control node,

said first voltage holding portion has a first capacitive element connected between said control node and said second voltage,

10 said current compensating portion has:  
a second transistor electrically coupled between said first node and a line for supplying said reference current and turned on in said first operation mode; and

a third transistor electrically coupled between said first node and said control node and turned on in said first operation mode,

15 said input transmitting portion has a second capacitive element connected between said input node and said control node, and

20 each of said first and second current supply circuits further includes a fourth transistor electrically coupled between said first node and the corresponding data line and turned on at least in said second operation mode.

10. The display apparatus according to claim 7, wherein  
each of said first and second current supply circuits further includes:  
a second voltage holding portion for holding said data voltage at a data node; and

5 a switch circuit for disconnecting said data node and said input node in said first operation mode and connecting said data node and said input node in said second operation mode, and

in each of said first and second current supply circuits, the data

10 voltage corresponding to a pixel to be scanned later is transmitted to said data node in said first operation mode.

11. The display apparatus according to claim 10, wherein  
in said first and second current supply circuits, said first and second operation modes are switched in correspondence with a switch of an object to be selected in said plurality of scan lines.

12. The display apparatus according to claim 7, further comprising:  
a reference current adjusting portion for adjusting the level of said reference current in accordance with a set value of data current corresponding to said display luminance.

13. The display apparatus according to claim 12, wherein  
said reference current adjusting portion selectively outputs one of a plurality of current levels prepared in advance, as said reference current.

14. The display apparatus according to claim 7, wherein  
each of said first and second current supply circuits further includes a switch portion provided between said current driving portion and said corresponding data line and turned on in said second operation mode, and  
5 in the ON period of said switch portion, the voltage of said input node is maintained at said predetermined initial voltage for a predetermined period and, after that, said input voltage is transmitted to said input node.